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followed by the international radiotelegraph distress signal, the latter to be transmitted in one or more separate groups, each group consisting of three separate distress signals;

(ii) On 8364 kHz transmit the international radiotelegraph distress signal in one or more separate groups, each group consisting of three separate distress signals; this group or these groups to be followed by a continuous long dash of not less than 30 seconds in duration;

(iii) Transmit the specified signals by automatically changing the operating frequency of the transmitter from 500 kHz to 8364 kHz and vice versa with a transfer time interval not to exceed one second;

(iv) Completely de-energize the receiver during operation of the transmitter;

(v) Be capable of testing the required automatic keying arrangement without the generation of radio frequency energy; and

(vi) For automatic transmission of the international radiotelegraph distress signal, not exceed 16 words per minute or be less than 8 words per minute. The alarm signal dashes must have a duration within the limits of 3.8 to 4.2 seconds, and the spaces between each of the 12 dashes constituting a series must have a duration within the limits of 0.8 to 1.2 seconds.

(f) Survival craft radio receivers must meet the following requirements:

(1) The receiver must be capable of receiving A2A or H2A emission over the 492–508 kHz band without manual tuning and when manually tuned must be capable of receiving A1A and A2A or H2A and J2A emission on any frequency in the 8320–8745 kHz band;

(2) The selectivity of the receiver preceeding the final detector must be flat within 6 dB over the band 492 to 508 kHz;

(3) The audio frequency response of the receiver must be flat within 6 dB over the range of frequencies between 400 and 1400 Hertz; and

(4) The receiver must be equipped with only one manually operated volume control.

(g) The artificial antenna must meet the following requirements:

(1) Provide a reliable test load for the transmitter at the frequencies 500 kHz and 8364 kHz of approximately the same electrical characteristics as the single wire or collapsible rod antenna required by this section;

(2) Be housed in a single container and provided with terminals. If more than two terminals are provided on the artificial antenna, all the terminals must be labelled; and

(3) Be prominently labelled "FOR TEST USE ONLY".

§ 80.265 Requirements for survival craft portable radio equipment.

(a) Survival craft portable radio equipment must be provided as a single portable buoyant unit consisting of a transmitter, receiver including headphones, power supply, grounding system, antenna system and line for lowering the apparatus. Each totally enclosed lifeboat must comply with the additional equipment requirements specified in this section:

(1) The radio must float in sea water and withstand a drop into sea water in various positions from a height of 6 meters (20 feet), without requiring repair or adjustment other than normal antenna tuning. The operating controls, indicating devices and instruments, including the headphones, must be protected against physical damage and from prolonged exposure to the weather. The radio must withstand submersion in sea water so that no part is less than 5 centimeters (2 inches) below the surface of the water for two hours without leaking;

(2) The radio must be fitted with handles or grips. It must be carryable by either one or two persons;

(3) The radio must be designed to attach to a lifeboat thwart by lashing or other acceptable means;

(4) The radio, exclusive of the line for lowering, must not weigh more than 27 kilograms (60 pounds). A radio for use in a totally enclosed lifeboat must not weigh more than 18 kilograms (40 pounds);

(5) The line for lowering must consist of not less than 12 meters (40 feet) of 9 thread manila or sisal rope, or the equivalent thereof, which must be securely attached to the radio at all times;

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(6) All removable components necessary for the proper operation of the radio must be attached to this equipment;

(7) Each radio must have a durable removable plate showing clearly the survival craft radio call sign in letters and digits and in characters of the Morse code; and

(8) The maximum overall dimensions of the radio to be used in totally enclosed lifeboats including accessories must not exceed 35 by 40 by 50 centimeters (14 by 16 by 20 inches).

(b)(1) Portable survival craft radio transmitters must meet the following requirements:

Operating frequency (kHz)	Frequency tolerance		Type of emission	Modulation percentage (average of modulation percentage of positive and negative peaks)	Modulation frequency	Average power output into specified artificial antenna	Artificial antenna
	Parts ¹ in 10 ⁶	Hz ²					
500	5,000	20	A2A and A2B or H2A and H2B.	Not less than 70	Not less than 450 nor greater than 1350 Hertz.	Not less than 1.7 watts.	10 ohm resistance, 75 picofarads capacitance.
500	5,000	20	.....do .....	.....do .....	.....do	Not less than 2 watts ³ .	15 ohms resistance, 100 picofarads capacitance.
8364	200	50	A2A and A3N or H2A and H3N.	.....do .....	.....do	Not less than 4 watts.	40 ohms resistance.

¹ For equipment approved before November 30, 1977.

² For equipment approved after November 29, 1977.

³ In the case of equipment approved prior to May 26, 1965, the power output may be 1.7 watts into an artificial antenna of 10 ohms resistance and 75 picofarads capacitance.

(2) The transmitter must be equipped with a visual indicator or indicators such as neon tubes to show antenna circuit resonance. Failure of the indicator(s) must not keep the transmitter from operating.

(c) Portable survival craft receivers must meet the following requirements:

(1) The audio output must be one milliwatt with a signal to noise power ratio of at least 10 to 1, when the receiver is supplied through the following artificial antennas with the respective radio frequency signals:

Operating frequency, (kHz)	Signal strength (microvolts)	Modulation factor	Modulation (Hz)	Artificial antenna
500	25	0.3	400	10 ohms resistance and 100 picofarads capacitance. ¹
8364	100	0.3	400	40 ohms resistance.

¹ In the case of equipment approved prior to May 26, 1965, the artificial antenna may be 10 ohms resistance and 75 picofarads capacitance.

(2) The noise power present in the output of the receiver when the receiver is adjusted for A2A or H2A emission on 500 kHz and 8364 kHz must be determined with an unmodulated input signal of the indicated strength.

(d) The power supply must meet the following requirements:

(1) The source of power must be a manually operated electric generator capable of energizing the survival craft radio installation. The mechanical power applied to the crank handle(s) or the propelling lever(s) of the generator

driving mechanism must not exceed a maximum of 0.15 horsepower for any operation of the survival craft radio installation at any temperature of the generator and its associated driving mechanism between minus 30 degrees and plus 50 degrees Celsius. Under these conditions the speed of rotation of the crank handle(s) must not be greater than 70 revolutions per minute nor must the cycles of operation of the propelling lever(s) be greater than 70 cycles per minute. The voltages applied to the radio installation must not vary

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from their normal values more than 20 percent at any generator speed in excess of the normal operating speed which can be manually developed.

(e) The antenna system must consist of a single wire antenna with a collapsible mast or a collapsible rod antenna conforming to the following requirements:

(1) The single wire antenna must be at least 12 meters (40 feet) of at least No. 10 AWG insulated extra-flexible stranded copper and include a means for fastening the wire to the antenna supports, and means for making electrical connection to the transmitter;

(2) Each totally enclosed lifeboat must be provided with a collapsible rod antenna which operates in either a freestanding position or supported only by a grommet in the canopy of the lifeboat. The antenna must be capable of being erected from within the enclosure. Antennas for use in totally enclosed lifeboats must be certificated.

(f) The grounding system must consist of either a conducting wire or plate to provide an efficient ground for the portable survival craft equipment. The conducting wire must consist of a length of not less than 6 meters (20 feet) of No. 10 AWG bare stranded copper or equivalent copper braid weighted at one end for immersion in the sea. The ground plate must consist of a bare plate or strips of corrosion resistant metal having a total area of at least .6 square meters (6.5 square feet) and must be located on the hull of the lifeboat below the waterline. The electrical connection to the grounding conductor or to the ground plate must be made from inside the lifeboat.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 36606, July 7, 1998]

§ 80.267 Requirements for survival craft nonportable radio equipment.

(a)(1) The radio transmitter must meet the following requirements:

Operating frequency (kHz)	Frequency tolerance		Type of emission	Modulation percentages (average of modulation percentage of positive and negative peaks)	Modulation frequency	Average power output into specified artificial antenna	Artificial antenna
	Parts ¹ in 10 ⁶	HZ ²					
500	5,000	20	A2A and A2B or H2A and H2B.	Not less than 70	Not less than 450 nor greater than 1350 Hertz.	Not less than 30 watts.	10 ohms resistance and 100 picofarads capacitance.
8364	200	50	A2A or H2A Ides.	.....do .....	.....do	Not less than 40 watts.	40 ohms resistance.

¹ For equipment approved before November 30, 1977.

² For equipment approved after November 29, 1977.

(2) The transmitter must have an antenna current meter.

(b) Survival craft non-portable receivers must meet the following requirements:

(1) The audio output must be one milliwatt at a signal to noise power ratio of at least 10 to 1, when the receiver is supplied through the following artificial antennas with the respective radio frequency signals:

Operating frequency, (kHz)	Signal strength (microvolts)	Modulation factor	Modulation (Hz)	Artificial antenna
500	200	0.3	400	15 ohms resistance and 100 picofarads capacitance.
8364	1,000	0.3	400	40 ohms resistance.

(2) When the receiver is adjusted for A2A or H2A emission on 500 kHz and 8364 kHz the noise power present in the output of the receiver must be determined with an unmodulated input signal of the indicated strength;

(3) The audio output of the receiver must be capable of at least 8 dB above